ANNUAL REPORT FOR 2011

US 64 Bypass Oxbow Mitigation Site
Tyrrell County
TIP No. R-2548E

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North Carolina Department of Transportation
July 2011

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SUMMARY

The US 64 Bypass Mitigation Site is located in Tyrrell County. The site was planted in December 2005 and was designed as mitigation for wetland impacts associated with roadway project R-2548.

The mitigation encompasses approximately 6.13 acres total of wetland restoration. The restoration effort involved the removal of the roadbed to existing wetland elevation, undercutting approximately 12 inches of soil, and back filling with available material. The site was then planted and will be monitored to ensure that it meets the vegetation success criteria. No hydrologic monitoring is required for this project; however, vegetation monitoring is required for five years.

There were three vegetation monitoring plots established throughout the 6.13 acre planting area. The 2011 vegetation monitoring of the site revealed an average tree density of 464 trees per acre. This average is well above the minimum success criteria of 260 trees per acre for the fifth year of monitoring. NCDOT supplementally planted this site in February 2007.

During the 2009 annual monitoring report meeting it was brought to NCDOT's attention that hydrologic monitoring should have been completed concurrently with the vegetation monitoring at the site. In 2010 NCDOT proposed that in lieu of installing monitoring gauges at the site, elevation shots would be taken in transects to provide documentation that the site was constructed to similar elevations as found in the adjacent wetland system. During the site visit held August 26th, 2010, the regulatory agency personnel agreed that the survey data could be used to provide documentation that the site was graded to the correct elevation and that hydrology was present at the site. This information can be found in the 2011 monitoring report in Appendix B. After completing the survey work it does appear that while there were variations in elevation found on the site, it was graded to similar elevations that were noted in the existing wetland.

NCDOT proposes to discontinue all monitoring activities at the US 64 Bypass Oxbow Mitigation Site.

1.0 INTRODUCTION

1.1 Project Description

The US 64 Bypass Mitigation Site is located at the existing US 64 roadbed in Tyrrell County just west of Columbia (Figure 1). The site consists of approximately 6.13 acres of mitigation for wetland impacts associated with project R-2548.

1.2 Purpose

In order for a mitigation site to be considered successful, a site must meet vegetation success criteria. This report details the vegetation monitoring in 2011 at the US 64 Bypass Mitigation Site. Hydrologic monitoring was not required for the site.

1.3 Project History

December 2005	Site planted
August 2006	Vegetation Monitoring (1 year)
February 2007	Site Supplementally Planted
August 2007	Vegetation Monitoring (1 year restart)
July 2008	Vegetation Monitoring (2 year)
August 2009	Vegetation Monitoring (3 year)
August 2010	Vegetation Monitoring (4 year)
July 2011	Vegetation Monitoring (5 year)

1.4 Debit Ledger

The entire US 64 Bypass wetland mitigation site was used for the R-2548E project to compensate for unavoidable wetland impacts.

2.0 VEGETATION: US 64 BYPASS MITIGATION SITE (YEAR 5 MONITORING)

2.1 Success Criteria

Success Criteria states that the permittee must attain and document a minimum survival rate of 320 planted trees per acre surviving for the first three years, decreasing by 10 percent for years four and five (260 trees per acre minimum for year five).

2.2 Description of Species

The following wetland species were planted in the Wetland Restoration Area:

Nyssa sylvatica var. *biflora*, Swamp Blackgum

Taxodium distichum, Baldcypress

Quercus phellos, Willow Oak

Nyssa aquatica, Water Tupelo

Chamaecyparis thyoides, Atlantic White Cedar

Quercus lyrata, Overcup Oak

2.3 Results of Vegetation Monitoring

Plot #	Swamp Blackgum	Baldcypress	Willow Oak	Water Tupelo	Atlantic White Cedar	Overcup Oak	Total (Year 5)	Total (at planting)	Density (Trees/Acre)
1	1	11	4	1	1	13	31	42	502
2	5	11		6	2	6	30	50	408
3	5	14	7	6			32	45	484
Average Density (Trees/Acre)									464

Site Notes: Vegetation plots 1 and 2 are 50 x 50 foot plots. Vegetation plot number 3 is 100 x 25 foot due to the location where the plot was set. The at-planting numbers changed from the 2006 at-planting counts due to the supplemental planting that took place in February 2007.

The planted trees had some competition, mostly from baccharis. Other species noted include: fennel, *Juncus* sp., cattail, woolgrass, black willow, sweetgum, baccharis, pine, sedge, poplar, wax myrtle, and various grasses. There was some four wheeler activity noted onsite but does not seem to be affecting the overall survival of the planted vegetation.

2.4 Conclusions

There were 3 vegetation monitoring plots established throughout the 6.13 acre planting area. The 2011 vegetation monitoring of the site revealed an average density of 464 trees per acre. This average is well above the minimum success criteria of 260 trees per acre for year five.

3.0 OVERALL CONCLUSIONS AND RECOMMENDATIONS

The following report summarizes the monitoring activities that have occurred in the past year for the US 64 Bypass Mitigation Site. Monitoring activities in 2011 represent the fifth year of monitoring for the site. The site must demonstrate vegetation success for a minimum of five years or until the site is deemed successful.

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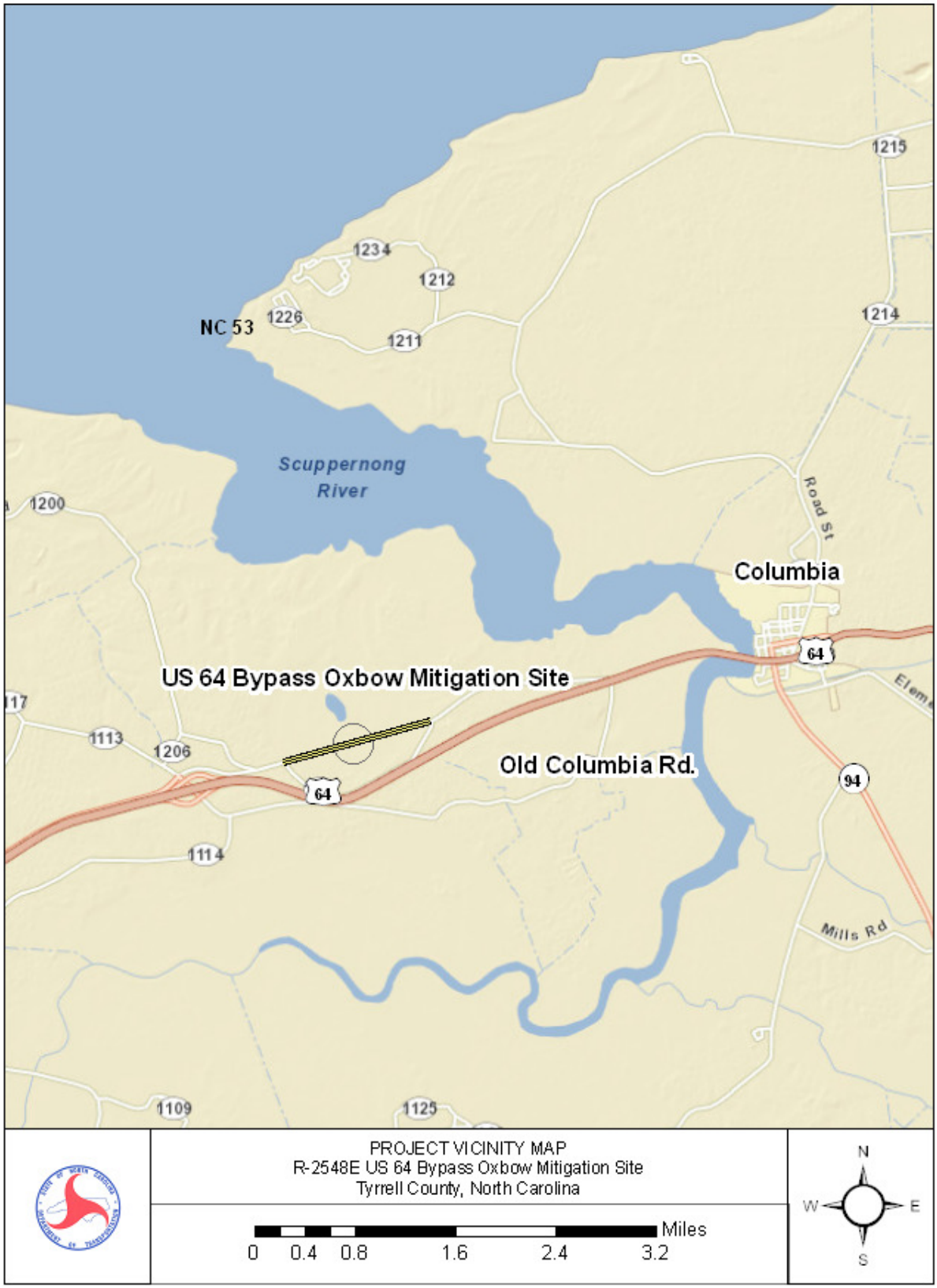


Figure 1 - Site Location Map

APPENDIX A

SITE PHOTOS

US 64 Bypass

Photo 1

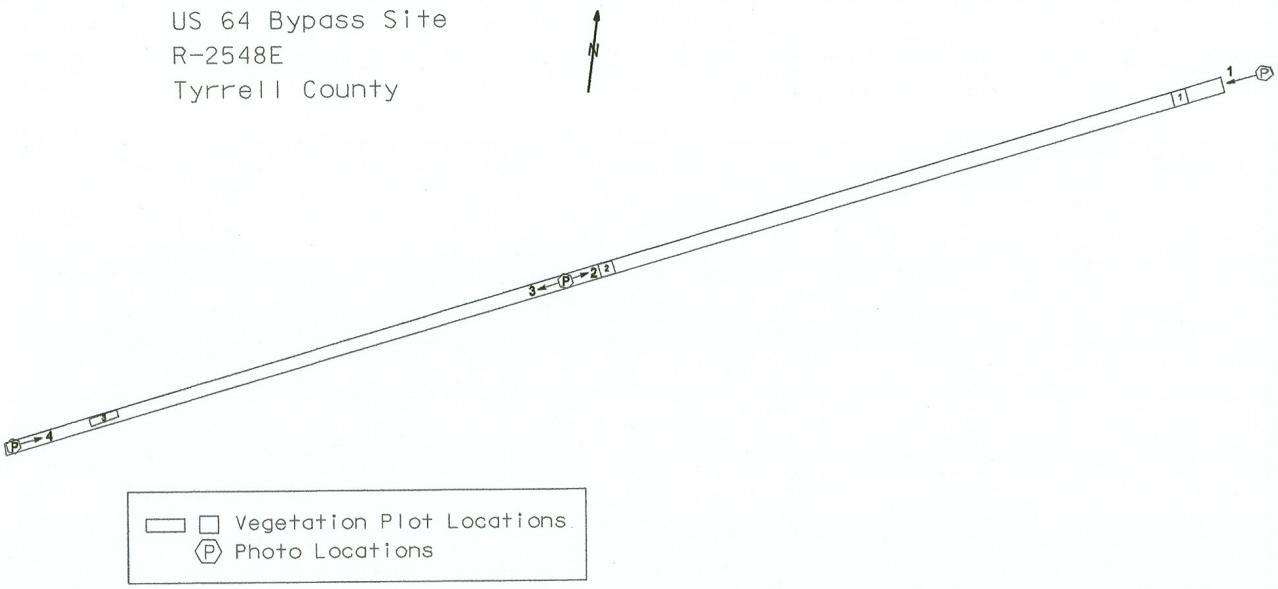
Photo 2

Photo 3

Photo 4

July 2011

US 64 Bypass Site
R-2548E
Tyrrell County



APPENDIX B

SITE CROSS SECTION LOCATIONS AND ELEVATIONS MAP

Elevation Shot #	Cross Section #1	Cross Section #2	Cross Section #3
1	94.83 (Existing Wetland)	93.34 (Existing Wetland)	93.37 (In Water)
2	94.13 (Existing Wetland)	93.74	93.86 (Existing Wetland)
3	93.94	93.82	94.07
4	93.62 (Deep Water)	94.1	93.87
5	94.4	94.28	93.98
6	94.43	94.2	93.93
7	94.6	93.61 (Existing Wetland)	93.91 (Edge of Water)
8	94.45		93.07 (1' FT. of Water)
9	94.64		
10	94.34 (Existing Wetland)		
11	94.45 (Existing Wetland)		
*Note: All elevation shots are relative to each other based on an assumed elevation of 100'